13th European Forum Berlin BMW Foundation Herbert Quandt, November 16 – 18, 2007

Cooperative Energy Security – Challenges for European Politics and Business

Comments on two energy security issues

John Deutch, Institute Professor, MIT, Cambridge, MA 02139, USA

The world faces two major energy challenges:

- Making the long-term transition from economies based on oil and gas;
- Avoiding the adverse economic and social consequences of climate change caused by global warming.

Both of these challenges have important security implications in addition to their economic aspects. The time allocated to me on this distinguished panel permits me only to identify the issues that most urgently demand international political action.[1] The record suggests that needed action will not be taken, and so I caution that governments need to prepare for managing difficult crises and perhaps even conflict.

Security implications of global trade in oil and gas. There are several trends that have troublesome security implications. First, all experts project an inexorable increase in global oil demand, with especially rapid demand growth from the large emerging economies, such as India and China. Despite high oil prices, demand is not abating, and new technologies are not being deployed sufficiently rapidly to avoid this trend. Accordingly, consuming countries will continue to depend on imports to meet projected demand at least for the next two decades.

[1] A more complete presentation of my views on these issues may be found in: *National Security Consequences of U.S. Oil Dependence,* Council of Foreign Affairs Task Force Report, John Deutch and James R. Schlesinger, co-chairs, October 2006. Available at: http://www.cfr.org/publication/11683/national_security_consequences_of_us_oil_dependency.html?breadcrumb=%2Fissue%2F17%2Fenergyenvironment. *Priority Energy Security Issues*, John Deutch, in "Energy Security and Climate Change," Trilateral Commission Task Force Report #61, Brussel, Belgium, 2007. Avaialbe at: http://www.trilateral.org/projwork/tfrsums/tfr61.htm.

Second, increasing production will be required from the Persian Gulf – Saudi Arabia, Kuwait, Iran, and Iraq – as well as from other countries that are either politically fragile or unfriendly to the United States and others, e.g., Nigeria, Ecuador, Venezuela, and Russia. This means that consuming countries must learn to work together to advance their interests with the major resource holders and to recognize the importance of maintaining political stability, especially in the Persian Gulf. One important step that would improve cooperation among consuming countries is to admit China and India to the International Energy Agency.

Third, national oil companies, NOCs, are increasing their control of reserves and production. To some degree, every NOCs, many of which are very competent in managing oil exploration and production, serve the political interests of their governments, which view their oil resource as a means to advance political objectives, as well as to obtain revenue. The result is an increasing trend in state-to-state agreements between producers and consumers, especially the new consumer countries. A noteworthy example is China's arrangements with Angola and Sudan. State-to-state agreements are an undesirable move away from open and transparent world oil markets, toward the use of oil as an instrument to influence political outcomes. Iran's 2.9 million barrel per day oil export constrains the E.U.'s willingness to take action against Iran's nuclear weapons program or against Iran's interference in Iraq.

Fourth, as demand for oil spreads around the world, and production of conventional oil is replaced by production in extreme environments, e.g., the Artic and deep offshore waters, the distribution system – tankers, pipelines, oil storage facilities – becomes larger and more extended. This distribution infrastructure is highly vulnerable to attack by terrorists. Consumer and producers have a common interest in taking measures to reduce the vulnerability of this infrastructure and to adopt plans for dealing with disruption.

Fifth, international trade in natural gas is growing in importance, transported either by pipeline or tankers carrying liquefied natural gas (LNG) or gas-to-liquids (GTL) products, such as methanol. For example, natural gas imports to North America are projected to

become an essential part of supply in coming years. This gas trade will bring related import dependence security concerns.

Without change, the net effect of these trends is toward greater geopolitical tensions between three parties: the developed OECD importers, the rapidly growing emerging economies as they increase their already considerable demand in world oil markets, and the major resource holders. At best this situation will become a three-sided game, as each party seeks to gain advantage from world oil. At worst, the situation will deteriorate, as economic competition in oil and gas markets turns into political competition for access to resources. There are many credible scenarios that could lead to political, and even military, conflict. For example, if political and economic conditions do not improve in many of the major resource holder countries, there is the possibility that these countries will experience internal upheaval resulting in new regimes with more extreme leadership. Many believe that uncertainty about access to oil could lead some western countries to topple uncooperative governments of oil producing states. China's inevitable appetite for oil and gas certainly adds strains within the region and to U.S.-China relations.

Climate change. The priority actions that need to be taken are clear:

First, the United States must adopt an effective policy to control greenhouse gas emissions. Congress will likely adopt legislation before 2010 instituting a cap-and-trade system or imposing an emissions tax, but it is less certain whether these emissions charges will be sufficiently high to stabilize emissions.

Second, greater progress is needed globally on the four approaches to reducing emissions: (1) Increased energy efficiency, most reliably achieved by increasing energy prices and removal of energy price subsidies where they still exist. (2) Increasing the pace of research, development, and demonstration of renewable technologies, such as solar, wind, and, especially, biomass. I believe improving energy innovation will require governments to adopt new R&D mechanisms and better harmonization of government and industry energy technology efforts. (3) Nuclear power is an important carbon-free electricity option. However, high cost, legitimate public concerns about reactor safety, lack of progress on waste management, and the spread of enrichment and reprocessing technologies of the nuclear fuel cycle with the implied danger for nuclear weapons

proliferation, are slowing new orders for nuclear plants in the United States and Europe. (4) New technologies and processes are needed for clean, i.e., no CO_2 emissions, for coal[2] use for electricity generation and for conversion to liquid and gaseous fuels.

I offer brief additional comments about coal because of the recent MIT study on *The Future of Coal*,[3] which I co-chaired. The key technology to enable coal use is capture of CO_2 and its sequestration in deep saline aquifers. In order to demonstrate that this technology is a practical option, the world urgently needs between five and ten projects, at scale, that demonstrate the technical performance, economic cost and, most importantly, a functioning regulatory framework. The regulatory framework must address criteria for site selection, operational practice, a monitoring system for storage integrity, and liability. In addition, demonstration is need for sequestration integrated with operating coal fired electricity plants or coal to synthetic fuels plants. I observe that the pace of the needed technology demonstration is too slow in the United States and, I believe, in the rest of the world.

Third, avoiding climate change requires reduction in GHG emission for all countries, not just the United States, Europe, and industrialized Asia. The large and rapidly growing emerging economies – Brazil, China, India, Indonesia, and Mexico – are not required under the existing international framework agreement on climate change to reduce their emissions. These countries resist accepting emissions constraints for several reasons: the developed OECD economies are responsible for the existing atmospheric inventory, the principle that should govern going forward is equal emissions per capita rather than equal emissions per unit of GDP. These countries face other pressing social and economic problems, e.g., health, poverty, water, that compete for the resources needed to avoid GHG emissions. Nor is it clear that these countries have internal markets and administrative systems in place that would permit effective operation of a cap-and-trade or emissions tax system. Despite many international meetings among knowledgeable experts, and some useful, but tiny, projects proposed under the Cooperative

[2] This applies to shale and tar sands as well as coal.

[3] *The Future of Coal*, an MIT interdisciplinary study chaired by John Deutch and Ernest J. Moniz, Cambridge MA, 2006. Available at: http://web.mit.edu/coal/.

Development Mechanism and Joint Implementation provisions of the Kyoto protocol, there are no serious proposal for how the developing economies will be brought into a worldwide framework for controlling carbon emissions. Suggested coercive measures such as adopting import duties on goods from emerging economies that do not constrain emissions is unlikely to be effective and represent an anti free trade cure that is likely to be as bad as the disease.

A realistic appraisal is that the pace of progress on these five climate change actions is inadequate, and that if the world stays on this path, significant adverse climate change is inevitable. This means that serious thought needs to be given to two other alternatives: The first is adaptation, how to facilitate adjustment to climate change. The second is geo-engineering, possible human action that will reverse global warming, for example by injecting sulfates into the upper atmosphere. Neither alternative is attractive.

The security implications are different, but no less real, than the security implications of oil and gas import dependence. At the most fundamental level, climate change will affect the essential economic and social welfare of countries from changes in food production to water availability and sea level rise. Waves of unwanted migrants will seek to move to other regions. The difference in priority that developed and developing economies place on climate are sure to infect all aspects of north-south diplomatic relationships. High energy-intensity industries, such as chemical manufactures, will move to places that do not have emissions constraints, prompting nations that apply emissions charges to retaliate with political pressure or imposition of tariffs. These differences are not likely to lead to war, but the differences will increasingly affect the relationships between countries.